

Rating of personality of normally-developing and mentally disabled children and the mothers' beliefs about their child's development

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The purpose of this paper focuses on mothers' beliefs about their child's personality and development (stability or change and causal attributions) and how these beliefs can be affected by mothers' experience (being a mother of a six or of a twelve-year-old child and being a mother of a normally-developing or of a mentally disabled child). The scales were completed by several samples of mothers. The effect of the temporal orientation (retrospective or perspective) was also considered. The results show that the mothers rate their child with an optimistic bias while the mothers of disabled children are less positive than those of the broad-ranging sample. The results are also in accordance with the decrease of positiveness as the child grows. Finally, the optimistic bias differs in function of the temporal orientation for the mothers of normally-developing children and for the mothers of mentally disabled children. The retrospective change is also overestimated with regard to the prospective one in the broad-ranging sample.

The purpose of this paper focuses on mothers' beliefs about their child's personality and development and on how these beliefs can be affected by mothers' experience. Mothers' beliefs are studied through two kinds of problematics, first the *stability or change* of their child's personality and second, the *causal attributions* of change and child's traits. Mothers' experience is presented here in a comparative way according to *child's age* and according to *child's mental development*. Since the present study considers the influence of child's age and mental development on mothers' beliefs, it innovates with previous research that studied beliefs about the stability of the personality and the causal attributions from another points of view. In the pages which follow, each of these two problematics will be considered and several hypothesis for the present study will be presented.

With regard to the *stability or change* of the personality, the results of empirical research agree with the stability of personality traits (Oser, 1986; Carver & Scheier, 1992; Costa & Mc Crae, 1988; Demorest, 1995). Whatever assessment instruments or samples used in these studies, correlation coefficients vary between .34 and .75 (Costa & Mc Crae, 1988).

Nevertheless a lot of persons believe that they have changed during the last years. They think that changes have occurred in their personality but on the other hand that persons around them are still the same. This belief is fundamental for the personal development and the social life of people. It is important to believe in the possibility of a personal development and also in the foreseeable nature of other people's behaviour. At the same time as their longitudinal study on the stability of the personality, Costa and Mc Crae (1988) have studied the self-assessment of change. During the last six years, 51% of the sample thought that they were still the same while 49% thought they were different. Authors have compared stability coefficients calculated from the NEO-PI (Costa & Mc Crae, 1985) used in the longitudinal study with the self assessment of change. For the individuals who thought they were different, none of the five factors was less stable than for the individuals who thought they were still the same. Furthermore, the individuals who thought they had changed considered that the changes were positive. These results underscore two biases, the *change illusion* on the one hand and the *optimistic bias* on the other hand. In his research on the self-change, Piolat (1988, 1989) using the *Self-Awareness Scale* of Fenigstein, Scheier, and Buss (1975, in Piolat, 1988) studied the change from a retrospective *versus* prospective point of view. When the assessment of change is not contextualized, results show that in comparison with future change for a period of three years, past change tends to be overestimated. On the other hand, in a defined context like the end of the studies for example, future change tends to be overestimated in comparison with past change. The period of three years has been chosen in reference to the study of Rappaport, Enrich, and Wilson (1985). This has suggested that three years is the period where the density of events that can produce changes in the personality is the highest.

The belief according to which the personality is stable or not has consequences for individuals. Giving hypothetical stories of peers' aggressivity or withdrawal behaviour, Mills and Rubin (1990) have shown that the attribution of difficult social behaviours to personality traits was linked to a lack of parents' child-rearing strategies. Erdley and Dweck (1993) have also shown similar effects with eight- to twelve-year-old children. Children were split into two groups based on an assessment of their beliefs. In the first group, the children believed that the personality was stable (*entity theorists*) while in the second group, the children thought that the personality could develop (*incremental theorist*). The two groups had to assess hypothetical behaviours of another child on slides. Results have shown that the entity theorists' ratings were more negative, more general and less qualified than the incremental theorists'. Entity theorists were also less empathic and advised much more punishment.

With regard to the research on the *causal attributions of traits*, they can be split into two groups. The first consists in the study of the actor's attributions on his own traits while the second consists in the study of the observer's attributions on someone else's traits.

Concerning the actor's attributions, individuals attribute their success and their positive traits to dispositional stable causes while they attribute their mistakes and their negative traits to environmental transitory causes (Augoustinos & Walker, 1995).

Concerning the observer's attributions, the "actor-observer effect" and the approach of Jones and Davis (1965, in Fiske & Taylor, 1984) indicate on the other hand that the observer prefers dispositional stable explanations for the actor's mistakes and negative traits because such explanations give more information than an environmental transitory explanation.

Nevertheless, if the observers are the child's parents, maybe they will react like actors and prefer dispositional stable explanations for the child's positive traits and environmental transitory explanations for the negative ones. So, Gretarsson and Gelfand (1988) from semi-structured interviews with mothers, Bugental, Blue, and Lewis (1990) from rating scales and behavioural observations, Bugental, Blue, and Cruzcosa (1989) from rating scales, Himelstein, Graham, and Weiner (1991) from 8-points rating scales and the review provided by Miller (1995), show that parents think that positive behaviours and traits are stable (dispositional factors) while negative ones are transitory (environmental factors). Amongst these studies, some of them consider special samples like abusive parents (Bugental et al., 1990), parents of hyperkinetic children (in Himelstein et al., 1991) or parents of mentally disabled children (Himelstein et al., 1991). There were some significant differences between the special samples

and the parents of normally-developing children. The results of Himelstein et al. (1991) notably showed that the mothers of disabled children attributed some negative traits and behaviours to dispositional stable causes. Furthermore, studies also indicated that the children who suffer from development disabilities were assessed less positively than normally-developing children were.

Finally, several studies showed that the attribution of negative behaviours to dispositional stable causes had consequences for parental child-rearing strategies. If negative behaviours are attributed to stable causes, they start few parental child-rearing strategies while transitory explanations start much more parental attempts to change the difficult behaviour (Mills & Rubin, 1990; Affleck, McGrade, Allen, & Mc Queeney, 1982; Pearl & Donahue, 1995).

The present research follows several studies made at the *Université Catholique de Louvain*. In 1996, mothers of normally-developing children described their child's personality. The free descriptions were coded from a coding grid based on the Five-Factor Model (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Openness) (Digman & Inouye, 1986; Digman, 1990; Costa & Mc Crae, 1987). The results notably showed that three-year-old children were described more positively than nine-year-old children concerning extraversion and conscientiousness and that mothers with a high educational level described their child more positively than mothers with a lower educational level. The study also indicated that children of the sixth and the fourth grades were assessed less positively than children of the second grade, that girls were assessed as more conscientious than boys but less open-minded and that mothers with a high educational level assessed their child more positively than mothers with a lower educational level (Roskam & Vandenplas-Holper, 2000).

In the free descriptions, without any instruction, mothers spontaneously provided their beliefs about their child's development and education. These beliefs were coded from a second coding grid (Vandenplas-Holper, Roskam, & Pirot, 2000). Results notably indicated that mothers spontaneously provided causal attributions for negative traits while they didn't explain positive ones and that mothers gave child-rearing strategies for negative traits while no intervention seemed to be necessary for positive ones. Results also showed that mothers relativized much more their child's negative traits than his/her positive ones: the child's behaviour is not so negative in any other context or environment and negative traits are considered to be transitory. Finally, the mothers referred more to change than to stability and more to change in a positive way than in a negative way.

These spontaneous beliefs led to a new research field and to the present research. By means of questionnaires, it studies the mothers' beliefs about their child's personality and development. It innovates with several aspects.

Most studies on the stability or change of the personality use self-assessment while the present research studies the stability or change of the child's personality as it is assessed by mothers. Considering the affective bond between the child and his/her mother, the optimistic bias and the illusion of change would appear in the ratings.

Costa and Mc Crae (1988) study the stability of the personality from a longitudinal design that collects at least two times data referring to the personality of the individuals at present. Our study innovates because, like Piolat's research (1988), it rates the stability or change of the personality from a prospective *versus* retrospective point of view.

Members of the sample of Costa and Mc Crae (1988) assess globally the change. A global assessment of change is also provided in the present research. It accurately studies the stability or change and the optimistic bias from a general instrument based like the NEO-PI, on the Five-Factor Model and it studies them globally from two specific items.

Furthermore, the present research innovates because the attributions concern not only the traits as in the studies of Jones and Davis (1965, in Fiske & Taylor, 1984), Gretaarsson and Gelfand (1988), Bugental et al. (1990), Himelstein et al. (1991) but also the stability or change of the personality.

Finally, the data of the present research allow studying the entity *versus* incremental theory as defined in the Erdley and Dweck (1993) study.

The studies which have been reviewed above give rise to several hypotheses.

With regard to the *actualization of traits* according to age, young children would be rated more positively than older ones (Roskam & Vandenplas-Holper, 2000). Through the same variable analysed according to the mental development, mentally disabled children would appear to be less positively described than normally-developing children (Himelstein et al., 1991).

Concerning the *hypothesis of change and the optimistic bias*, children will be rated as more positive at present than in the past and more positive in the future than at present (Costa & McCrae, 1988).

Since the retrospective and prospective ratings are not contextualized, the *study of stability or change of the personality* would show that past change is overestimated in comparison with future change (Piolat, 1988, 1989).

Furthermore, incremental mothers would rate their child more positively than entity mothers. The optimistic bias would also be more important for incremental mothers (Erdley & Dweck, 1993).

According to the optimistic bias, the *study of causal attributions of change* would show that positive changes will be attributed to causes that can be easily checked by the mothers or by the child (Mills & Rubin, 1990).

With regard to the *causal attributions of traits*, all the mothers will attribute their child's positive traits to stable causes. Mothers of normally-developing children will explain their child's negative traits with transitory causes while mothers of disabled children will use stable explanations for their child's negative traits (Augoustinos & Walker, 1995; Fiske & Taylor, 1984; Himelstein et al., 1991; Gretaarsen & Gelfand, 1988; Miller, 1995).

Method

Samples

Figure 1 gives the samples' structure.

Samples		
Stage 1	445 mothers of normally-developing children (225 girls and 220 boys)	
	– 198 6-year-old children	
	– 247 12-year-old children	
	50 mothers of disabled children (23 girls and 27 boys)	paired sample $n=50$
	– 50 12-year-old children	
Stage 2	327 mothers of normally-developing children (168 girls and 159 boys)	
	– 136 6-year-old children	
	– 191 12-year-old children	
	29 mothers of disabled children (14 girls and 15 boys)	paired sample $n=29$
	– 29 12-year-old children	

Figure 1. Samples' structure

Data were gathered in two stages during the academic year 1997-1998. The experimental design allows to have two independent samples to compare the ratings considering the child's age and a paired sample of two groups of twelve-year-old children, one with normally-developing children and the other with mentally disabled children.

Mothers came from various regions of French-speaking Belgium. Mentally disabled children were all registered in a special school for severely disabled children. Their IQ stood

between 25 and 55. At a first stage, 50 disabled children and 29 at a second stage, were paired with normally-developing children considering the child's age and gender and the mother's and father's educational level.

The mother's educational level was obtained by considering her total number of successful years from the first grade. The same principle was used for the father's educational level. For the sample of normally-developing children, the mean educational level of the mothers was 13.19 years, with a standard deviation of 2.93. For the sample of mentally disabled children, the mean educational level of the mothers was 10.94, with a standard deviation of 3.44. For the paired sample, the mean educational level of the normally-developing children's mothers was 11.42, with a standard deviation of 2.84. The mean educational level of the disabled children's mothers was 10.94, with a standard deviation of 3.44.

Data collection

Figure 2 presents the experimental design.

Stage 1	EBMCF* present	Extraversion (5 items)
		Agreeableness (5 items)
		Conscientiousness (5 items)
		Emotional Stability (5 items)
		Openness (5 items)
Stage 2	EBMCF retrospective (50% of the sample)	
	EBMCF prospective (50% of the sample)	
	Stability or change	Overall rating (1 item)
		Satisfaction (1 item)
	Causal attributions	Change (4 items)
		Positive personality traits (4 items)
		Negative personality traits (4 items)

Figure 2. Experimental design

Note. * Bipolar Rating Scales based on the Five-Factor Model.

Data were gathered by 20 students from the *Faculté de Psychologie et des Sciences de l'Education de l'Université Catholique de Louvain*. The students were aware of the objective of the study and were given exact instructions regarding the data collection. Students contacted normal and special schools. Mothers were first contacted by letter to be told what their participation would involve and to assure them the data would remain confidential. They were free to take part or not in the experiment.

At a first stage, mothers received the letter with Bipolar Rating Scales based on the Five-Factor Model (EBMCF). They rated then their child's personality as it was at that time. There were 25 scales, five for each factor. The items were in the form of pairs of adjectives: for example, *réserve-spontané* (reserved-spontaneous) for extraversion, *désagréable-gentil* (disagreeable-kind) for agreeableness, *brouillon-méticuleux* (untidy-meticulous) for conscientiousness, *variable-constant* (variable-constant) for emotional stability, *sans imagination-inventif* (without any imagination-inventive) for Openness. One of the adjectives constituted the positive pole, the other the negative one. A 9-points Likert-type scale was provided under each pair of adjectives. For each item, the rater had to assign a score according to what s/he considered best corresponding to the child. Internal consistency assessed by Cronbach's alpha varied from .67 to

.90. Test-retest correlations varied between .80 and .89. The total percentage of variance explained by the five factors was 60.5%. Finally, the items were not correlated with social desirability (Roskam, de Maere-Gaudissart, & Vandenplas-Holper, 2000).

The instructions¹ of the EBMCF led the mothers to rate their child in comparison with other children in general (brothers, cousins, neighbours, friends, ...). Those instructions had to lead the mothers of the two groups (normally-developing children or mentally disabled children) to use the same reference group to rate their child. There was a serious danger of seeing the mothers of disabled children refer spontaneously to classmates. Festinger's theory of social comparisons (1954, in Augoustinos & Walker, 1995) and other research like Renick and Harter's (1989) have shown that the choice of the reference group influenced considerably the results of the rating. Renick and Harter (1989) have worked with a sample of children with learning disabilities. The children of the sample who compared themselves with normally-developing children rated themselves as less competent while the children of the sample who compared themselves with children with learning disabilities rated themselves more positively.

At a *second stage*, mothers who had filled the first questionnaire received another one a few days later. This one consisted in the EBMCF again but this time, half the sample had to rate their child's personality as it was three years before and the other half had to rate their child's personality as it would be three years later. For the first half, temporal orientation was retrospective while for the other half, it was prospective. The allocation of the mothers on the two temporal orientations was made randomly.

Other items were included in the second questionnaire. Since the first one was focused on the mothers' rating of the child's personality, the second one had to consider the stability or change of his personality and the mothers' causal attributions of change and child's traits. The wording of the item relating to overall rating of the stability or change of the personality was: "*lorsqu'il aura trois ans de plus, avez-vous l'impression que votre enfant aura beaucoup changé ou qu'il sera resté toujours le même?*" ("When he/she is three years older, do you think that your child will be very different or will still be the same?"). The wording of the item relating to the satisfaction towards the evolution of the child's personality was: "*Les changements, quelle que soit leur importance, vous causeront-ils des soucis ou vous apporteront-ils de la satisfaction?*" ("Will changes, whatever their importance is, bring trouble to you or will they bring you satisfaction?"). Its function is to confirm in general the hypothesis of optimistic bias.

Mothers also had to agree with four causal attributions about these changes: parents' child-rearing practices, child's efforts, and influence of external events or of other persons. Among these four attributions, the first two referred to causes which can be more easily checked by the mother or by the child and the last two referred to causes that are more external and less controllable. For all these items, a 9-points Likert-type scale was provided.

Finally, the second questionnaire also contained items relating to causal attributions of negative *versus* positive traits. The traits, two positive and two negative, were extracted from ratings provided by the mothers at the first stage. Two traits rated negatively at the first stage, which score was lower than five, and two traits rated positively, which score was higher than five, were chosen. The chosen traits with the same polarity had to relate to the same factor of the Five-Factor Model. For each of the two negative *versus* positive traits, the mothers had to agree with four causal attributions, parents' child-rearing practices, child's nature, his/her age or influence of external events. A 9-points Likert-type scale was provided for each attribution. Amongst these attributions, the first two were more stable while the last two were more transitory.

Dependent variables

The EBMCF were earlier validated (Roskam et al., 2000) so statistical analyses were performed with means of untreated scores.

The comparative analyses of data were performed according to two independent variables: the child's *age* and the child's *mental development*.

In order to rate our hypotheses, several dependent variables were extracted from the two questionnaires.

First, concerning the EBMCF, Likert-type scales allowed an easy operationalization of the mothers' actualization of their child's personality traits. The *actualization of traits* is the first dependent variable.

Second, the *study of change and of the optimistic bias* by mothers was performed according to two kinds of scores.

"Detailed scores of change" were calculated for each factor of the model and for each temporal orientation like this formula shows: present-past for retrospective temporal orientation, future-present for prospective temporal orientation. As regards repeated measures, this formula allows to obtain scores reflecting the child's change as rated by his/her mother for a period of three years.

A "global score of change" has been performed for each temporal orientation from the item relating to satisfaction towards the evolution of the child's personality.

Third, the *study of stability or change of the personality* was also performed from two kinds of scores.

The "stability of the personality" has been rated *accurately* from correlations of mean scores for each factor and for the two temporal orientations.

The "stability of the personality" has been rated *globally* from the item relating to the overall rating of stability and change of the personality. The mothers were divided into two groups from this overall item, the first group with *entity theorist* mothers considering personality as stable and the other one with *incremental theorist* mothers considering personality as malleable. On the 9-points scale, five is the caesure point. The sharing of the mothers around this point shows that behind and below are 50% of the sample. Mothers whose score is higher than five are considered as entity theorists. Mothers whose score is lower than or equal to five are considered as incremental theorists.

Finally, the "causal attributions of change" and the "causal attributions of positive and negative traits" are the two dependent variables used for the *study of attributions*. The score relative to each of the four stable or transitory attributions was calculated from the sum of the two negative traits on the one hand and the two positive ones on the other hand.

Results

Study according to child's age

Actualization of traits. Table 1 gives the means and standard deviations of the five factors of the model according to age for the data gathered in 1997 from the mothers of six- and twelve-year-old children.

Table 1

Means and standard deviations of the five factors of the model according to age for the data gathered in 1997 from the mothers of 6- and 12-year-old children

Factors	Age			
	6		12	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Extraversion	6.42	1.34	6.05	1.44
Agreeableness	7.18	1.15	7.04	1.22
Conscientiousness	6.39	1.59	5.81	1.86
Emotional stability	5.32	1.25	5.32	1.31
Openness	7.70	0.96	7.27	1.18

As predicted, six-year-old children are rated overall more positively than twelve-year-old children, $F(5;439)=4.60$, $p<0.001$. The analysis of variance also show significant differences for extraversion, $F(1;443)=6.47$, $p<0.05$, conscientiousness, $F(1;443)=9.16$, $p<0.005$, and openness, $F(1;443)=7.89$, $p<0.005$.

Rating of the hypothesis of change and optimistic bias. Table 2 presents the means and standard deviations of the five factors for the present rating, retrospective or prospective, according to age and temporal orientation.

Table 2
Means and standard deviations of the five factors for the present rating, retrospective or prospective, according to age and temporal orientation

Factors	Present				Retrospective				Present				Prospective			
	6(n=54)		12(n=100)		6(n=54)		12(n=100)		6(n=74)		12(n=88)		6(n=74)		12(n=88)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Extraversion	6.43	1.25	6.25	1.31	6.01	1.49	5.94	1.62	6.46	1.42	5.95	1.54	6.63	1.09	6.30	1.33
Agreeableness	7.27	1.12	7.20	1.17	6.93	1.22	6.89	1.28	7.21	1.21	6.84	1.31	7.27	1.05	6.99	1.11
Conscientiousness	6.78	1.29	5.89	1.79	6.24	1.58	5.85	1.62	6.26	1.58	5.84	1.96	6.56	1.31	6.43	1.56
Emotional stability	5.49	1.04	5.30	1.33	5.47	1.20	5.17	1.39	5.23	1.39	5.41	1.32	5.62	1.10	5.45	1.31
Openness	7.83	0.86	7.35	1.08	7.58	0.95	7.25	1.01	7.84	0.89	7.21	1.30	7.59	0.88	7.27	1.11

Results are in accordance with the hypotheses of change and optimistic bias. With regard to retrospective *versus* prospective change, from the retrospective point of view, normally-developing children are assessed more positively at present than in the past for extraversion, $t(153)=4.43$, $p<0.000$, agreeableness, $t(153)=4.58$, $p<0.000$, conscientiousness, $t(153)=2.53$, $p<0.01$, and openness, $t(153)=2.50$, $p<0.01$.

With regard to the prospective point of view, normally-developing children are assessed more positively in the future than at present for extraversion, $t(161)=-3.42$, $p<0.000$, conscientiousness, $t(161)=-5.26$, $p<0.000$, and emotional stability, $t(161)=-2.47$, $p<0.05$.

Detailed scores

Table 3 presents the means and standard deviations of the detailed scores for change and satisfaction according to age and temporal orientation.

Table 3
Means and standard deviations of the detailed scores for change and satisfaction according to age and temporal orientation (TO)

Detailed scores	Retrospective TO				Prospective TO			
	6		12		6		12	
	M	SD	M	SD	M	SD	M	SD
Extraversion	2.09	4.46	1.55	5.10	.88	5.26	1.75	4.83
Agreeableness	.09	4.29	.63	4.99	.31	4.33	.73	4.14
Conscientiousness	2.65	5.55	.15	4.51	1.51	5.43	2.95	5.61
Emotional stability	1.24	3.67	.48	3.71	1.93	5.09	.22	5.10
Openness	1.70	3.94	1.54	4.54	-1.24	2.97	.30	3.43
Satisfaction	7.46	1.54	6.41	2.29	6.51	1.63	6.14	1.53

The analysis of variance shows the effect of temporal orientation, age and interaction for the five factors as a whole. As predicted, change assessed from a retrospective point of view is higher than change assessed from a prospective point of view, $F(5;308)=6.38$, $p<0.001$. Change is globally higher for six-year-old children than for twelve-year-old children, $F(5;308)=2.37$, $p<0.05$. Interaction is also significant, $F(5;308)=3.76$, $p<0.005$. For the temporal orientation again, ANOVA shows a significant difference towards the same direction for openness, $F(1;312)=23.38$, $p<0.001$. ANOVA is significant for age for emotional stability, $F(1;312)=6.33$, $p<0.05$. Interaction is significant for openness, $F(1;312)=4.72$, $p<0.05$ and for conscientiousness, $F(1;312)=9.77$, $p<0.005$.

Global score

With regard to the item relating to satisfaction towards the evolution of the child's personality, the analysis of variance shows that mothers of six-year-old children are more satisfied than mothers of twelve-year-old children, $F(1;312)=10.09$, $p<0.005$. Furthermore, satisfaction is higher when rating is retrospective than when it is prospective, $F(1;312)=7.85$, $p<0.005$.

Study of stability or change of the personality

Detailed scores

Table 4 gives the correlations between ratings at present and ratings in the past or in the future for each of the five factors and for six-year-old and twelve-year-old children from mean scores.

Table 4

Correlations between ratings at present and ratings in the past or in the future for each of the five factors and for 6-year-old and 12-year-old children from mean scores

Factors	Retrospective		Prospective	
	6	12	6	12
Extraversion	0.29**	0.17	0.67***	0.78***
Agreeableness	0.67***	0.75***	0.71***	0.77***
Conscientiousness	-0.05	-0.13	0.73***	0.82***
Emotional stability	0.49***	0.35***	0.69***	0.69***
Openness	0.11	0.38***	0.77***	0.84***

Note. *** $p<0.001$; ** $p<0.05$.

Fisher's test performed on the correlation coefficients shows several significant differences. For the six-year-old children, the correlation coefficient is higher for the prospective point of view than for the retrospective point of view for conscientiousness, $Z=-5.48$, $p<0.05$, and openness, $Z=-5.13$, $p<0.05$. For the twelve-year-old children the correlation coefficients are higher for the prospective point of view than for the retrospective one for extraversion, $Z=5.98$, conscientiousness, $Z=-8.81$, $p<0.05$, emotional stability, $Z=-3.40$, $p<0.05$, and openness, $Z=-5.81$, $p<0.05$.

Global score

With regard to the item relating to the assessment of stability or change of the personality, analyses don't show any significant differences. Frequencies indicate that mothers share around the caesure point equal to five on the 9-points scale. Results don't support the hypothesis. The analyses according to entity *versus* incremental theory overall show that mothers with an entity theory assess their child more positively than mothers with an incremental theory,

$F(5;310)=2.56, p<0.05$. Their rating is more positive for extraversion, $F(1;314)=8.08, p<0.005$ and emotional stability, $F(1;314)=4.88, p<0.05$. The difference for agreeableness also tends to be significant, $F(1;314)=3.00, p<0.1$. With regard to retrospective versus prospective rating of the child's personality, mothers with an entity theory are generally more positive, $F(5;310)=4.91, p<0.001$. They are more positive for agreeableness, $F(1;314)=7.16, p<0.01$, conscientiousness, $F(1;314)=14.48, p<0.001$ and openness, $F(1;314)=14.30, p<0.001$. Finally, mothers with an entity theory attribute the changes of their child to parents' child-rearing practices more than mothers with an incremental theory, $F(1;314)=5.81, p<0.05$.

Study of causal attributions. Table 5 gives the means and standard deviations for the attributions of change and of positive versus negative traits for the six- and twelve-year-old normally-developing sample.

Table 5

Means and standard deviations of attributions of change and positive versus negative traits for 6 and 12-year-old children of the broad-ranging sample

	6-year-old($n=136$)		12-year-old($n=191$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attributions of change				
Controllable causes				
Child-rearing	6.47	1.98	5.79	2.23
Child's efforts	6.71	1.98	6.77	1.88
Uncontrollable causes				
Others' influence	5.77	2.13	5.88	2.18
External events	6.83	2.12	6.79	2.17
Attributions of positive traits				
Stable causes				
Child-rearing	5.96	2.10	5.80	1.98
Child's nature	7.32	1.58	7.48	1.40
Transitory causes				
Child's age	3.55	2.07	3.26	1.91
External influences	4.52	2.37	4.84	2.17
Attributions of negative traits				
Stable causes				
Child-rearing	3.73	1.46	3.66	1.86
Child's nature	6.52	1.59	6.52	1.74
Transitory causes				
Child's age	5.03	1.66	4.88	1.85
External influences	4.19	2.14	4.34	2.07

Causal attributions of change

For the causal attributions of change, it appears that in the normally-developing sample, the positive changes that occurred in the child's personality are attributed to causes that can be easily checked by the mother or the child. The satisfaction towards the change is positively correlated with parents' child-rearing practices, .36, $p<0.00$, and with child's efforts, .31, $p<0.00$. The satisfaction towards change is not correlated with the influence of external events or of other persons.

Causal attributions of traits

Parents' child-rearing practices is significantly more used to explain positive traits than to explain negative ones, $F(1;308)=309.61, p<0.001$, the same for the child's nature, $F(1;308)=60.11, p<0.001$ and for the influence of external events, $F(1;308)=9.28, p<0.005$. Child's age as a transitory factor is significantly more used to explain negative traits than

positive ones, $F(1;308)=118.42$, $p<0.001$. The interaction between temporal orientation and polarity of traits is also significant for parents' child-rearing practices, $F(1;308)=15.24$, $p<0.001$ and child's age, $F(1;308)=3.66$, $p<0.05$. The mothers' optimistic bias is higher in the retrospective point of view than in the prospective one.

Study according to child's mental development

Actualization of traits. Table 6 gives the means and standard deviations for the EBMCF at the first stage for the paired sample of normally-developing children and mentally disabled children.

Table 6

Means and standard deviations for the EBMCF at the first stage for the paired sample of normally-developing children (ND) and mentally disabled children (MD)

Factors	Sample			
	ND		MD	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Extraversion	6.12	1.34	5.45	1.56
Agreeableness	7.02	1.34	6.73	1.66
Conscientiousness	5.53	1.80	5.30	1.51
Emotional stability	5.40	1.21	4.94	1.20
Openness	7.30	1.14	5.41	1.58

Note. $N=50$ pairs of children.

As predicted, with regard to actualization of traits assessed by the mothers, disabled children are overall assessed less positively than normally-developing children, $F(5;94)=10.32$, $p<0.001$. They are also assessed less positively for extraversion, $F(1;98)=5.38$, $p<0.05$, emotional stability, $F(1;98)=4.36$, $p<0.05$, and openness, $F(1;98)=46.98$, $p<0.001$.

Rating of the hypothesis of change and optimistic bias. Table 7 gives the means and standard deviations of the five factors for present rating, retrospective or prospective, according to mental development and temporal orientation.

Table 7

Means and standard deviations of the five factors for present rating, retrospective or prospective, according to mental development [normally-developing (ND) and mentally disabled (MD)] and temporal orientation

Factors	Present				Retrospective				Present				Prospective			
	6(n=54)		12(n=100)		6(n=54)		12(n=100)		6(n=74)		12(n=88)		6(n=74)		12(n=88)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Extraversion	6.29	1.17	5.45	1.66	5.68	1.50	5.02	1.42	5.90	1.38	5.31	1.65	6.00	1.40	5.56	1.28
Agreeableness	7.41	1.34	7.04	1.55	6.89	1.37	7.00	1.14	6.63	1.67	6.83	1.42	7.03	1.34	6.97	1.04
Conscientiousness	5.93	2.15	5.88	1.50	5.79	1.74	5.00	1.69	5.01	1.88	5.30	1.57	6.06	1.41	5.23	1.54
Emotional stability	5.41	1.29	5.37	1.28	5.34	1.61	4.79	1.25	5.39	.84	4.87	.74	5.64	.80	5.06	1.14
Openness	7.44	1.02	5.55	1.79	7.24	0.94	5.23	1.63	6.83	1.31	5.13	1.58	7.00	1.06	5.61	1.43

In the paired sample, the mothers of disabled children think that their child is more extravert now than he/she was three years ago, $t(14)=2.20$, $p<0.05$. Results tend to be significant for conscientiousness, $t(14)=2.04$, $p<0.1$. The mothers of normally-developing children think that their child is more extravert, $t(14)=2.25$, $p<0.05$, and more agreeable, $t(14)=2.08$, $p<0.05$, now than three years ago. Results tend to be significant for openness, $t(14)=1.78$, $p<0.1$.

There is no significant result for the comparison between the present and the prospective rating of the mothers of disabled children. On the other hand, the mothers of normally-developing children think that their child will be more conscientious in the future than he/she is now, $t(13)=-2.76$, $p<0.05$. Results tend to be significant for agreeableness, $t(13)=-1.84$, $p<0.1$.

Detailed scores

Table 8 presents the means and standard deviations of detailed scores and satisfaction according to mental development and temporal orientation.

Table 8

Means and standard deviations of detailed scores and satisfaction according to mental development (normally-developing (ND) and mentally disabled (MD)) and temporal orientation (TO)

	Retrospective TO				Prospective TO			
	ND		MD		ND		MD	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Detailed scores								
Extraversion	.20	.43	.32	1.05	.10	.88	.24	.85
Agreeableness	-.60	1.46	-1.55	1.83	.40	.82	.14	.95
Conscientiousness	2.07	1.82	2.25	1.70	1.04	1.41	-.07	1.03
Emotional stability	.15	1.06	.88	1.67	.26	.69	.19	1.42
Openness	-.27	2.06	.35	1.68	.17	.61	.49	1.10
Satisfaction	6.67	1.84	5.80	2.43	6.29	1.33	6.57	1.60

The analysis of variance indicates a principal effect of temporal orientation for the five factors of personality. The change assessed from a retrospective point of view is higher than the change assessed from a prospective point of view, $F(5;50)=8.42$, $p<0.001$. The ANOVAS show significant results for agreeableness, $F(1;54)=14.57$, $p<0.001$, and conscientiousness, $F(1;54)=17.29$, $p<0.001$.

Global score

No results were significant.

Study of stability or change of personality

Detailed scores

Table 9 gives correlations between present rating and retrospective or prospective one for each of the five factors and for normally-developing children and mentally disabled children from mean scores.

For the mothers of normally-developing children, Fisher's test carried out on the correlation coefficients shows that correlations are higher for the prospective point of view than for the retrospective one with regard to openness, $Z=-3.53$, $p<0.05$. Results weren't significant for the mothers of mentally disabled children.

Table 9

Correlations between rating at present and retrospective or prospective rating for the five factors and for normally-developing (ND) and mentally disabled children (MD) from mean scores

Factors	Retrospective		Prospective	
	ND	MD	ND	MD
Extraversion	0.90***	0.81***	0.79***	0.86***
Agreeableness	0.35	0.19	0.04	0.74**
Conscientiousness	0.25	0.27	0.66**	0.78***
Emotional stability	0.87***	0.45	0.64**	-0.10
Openness	-0.08	0.22	0.88***	0.73**

Note. *** $p < 0.001$; ** $p < 0.05$.

Global score

There was no significant difference in the paired sample. Frequencies show that mothers split into two groups around caesure point equal to five on the 9-points scale. With regard to retrospective and prospective rating, the analyses according to entity *versus* incremental theory show that mothers with an entity theory assess their child more positively than mothers with an incremental theory for openness, $F(1;56)=6.05$, $p < 0.05$.

Study of causal attributions. Table 10 gives the means and standard deviations for the attributions of change and of positive *versus* negative traits in the paired sample.

Table 10

Means and standard deviations of the attributions of change and positive versus negative traits for the paired sample of normally-developing (ND) and mentally disabled (MD) children

	ND		MD	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attributions of change				
Controllable causes				
Child-rearing	6.07	2.07	6.55	1.70
Child's efforts	7.34	1.45	6.69	1.70
Uncontrollable causes				
Others' influences	5.59	2.40	5.41	2.15
External events	6.90	1.86	6.79	2.24
Attributions of positive traits				
Stable causes				
Child-rearing	5.86	1.70	5.53	1.87
Child's nature	7.38	1.33	7.29	1.71
Transitory causes				
Child's age	3.79	2.27	3.24	2.20
External influences	4.03		5.00	2.29
Attributions of negative traits				
Stable causes				
Child-rearing	3.05	1.69	2.72	1.78
Child's nature	6.66	1.99	7.03	1.60
Transitory causes				
Child's age	4.64	1.85	4.31	2.16
External influences	3.64	2.07	4.03	2.13

Note. $N=29$ pairs of children.

Causal attributions of change

For the mothers of disabled children, the satisfaction towards the change is positively correlated with parents' child-rearing practices, .41, $p < 0.05$, and with the influence of other persons, .31, $p < 0.1$. Child's efforts and the influence of external events are not considered as possible explanations for the child's positive development. For the mothers of normally-developing children, the satisfaction towards the change is positively correlated with child's efforts, .51, $p < .005$ and parents' child-rearing practices, .32, $p < 0.1$.

Causal attributions of traits

In the paired sample, parents' child-rearing practices is significantly more used to explain positive traits than to explain negative ones, $F(1;50)=88.64$, $p < 0.001$, the same for external events, $F(1;50)=3.13$, $p < 0.1$. Child's age as a transitory factor is significantly more used to explain negative traits than positive ones, $F(1;50)=7.37$, $p < 0.01$.

Discussion

The studies carried out on the beliefs about the stability of the personality, about the causal attributions of positive and negative traits and the studies early led in our department made it possible to generate certain hypotheses. In general, these hypotheses were verified.

Globally, the ratings of mothers of normally-developing children are positive and the Likert-type scales allow operationalizing the mother's *actualization* of their child's traits. It is necessary for mothers assessing their child's personality to choose a reference group (Festinger, 1954, in Augoustinos & Walker, 1995). Considering the strong affective bond, they would assess their child in comparison with a general group of children where their child has a worthwhile position. The aim of this optimistic bias is to protect or to rise the self-esteem. Considering the instruction to refer to normally-developing children, the ratings provided by the mothers of disabled children are less positive than those of the broad-ranging sample. The differences are significant for extraversion, openness and emotional stability. These factors are linked to the definition of mental disability that describes a deficit of intellectual abilities on the one hand and of social capacities on the other hand. Furthermore, the mental disability is often accompanied by behavioural deficits and humour disorders.

With regard to the *hypothesis of change and optimistic bias* by mothers, normally-developing children are rated more positively at present than in the past and more positively in the future than at present. These results seem to be conflicting with findings from previous research and cross experimental designs considering age (Roskam & Vandenplas-Holper, 2000). But a mother's rating of her child in reference to several periods of his life is the concern of another approach. In the present research, it is the mother's beliefs about her child's development that is underscored. In this context, it's fundamental for her to believe that her child always develops positively. Disabled children on the other hand are rated more positively at present than in the past but no difference is significant from the prospective point of view. This lack of difference illustrates the uncertainty of parents of a disabled child considering the future. They seem to be less confident than parents of normally-developing children as regards the adolescent and adult years. The prospective rating illustrates the fear for the future, the development limit, the institutional way often drawn for the child.

The effect of temporal orientation and of child's age on detailed and global scores shows that mothers consider their child as less malleable as he/she grows and that they are more satisfied by changes that occurred when the child was six than when he/she is twelve. Disabled children are also considered as more malleable in the past than in the future. These results are consistent with the decrease of positiveness found in previous research with normally-developing children aged three and nine and of the second, fourth and sixth grades (Roskam & Vandenplas-Holper, 2000).

In accordance with the hypothesis concerning *the stability or change of the personality*, the retrospective change is overestimated with regard to the prospective one. The mothers

consider that their child will change less in the future than he changed in the past. These results are in accordance with Piolat's (1988) study. Furthermore, they qualify the optimistic bias found with mothers of the broad-ranging sample. No significant difference appears in the sample of mothers of disabled children.

While in the Vandenplas-Holper et al. (2000) study mothers refer more to change than to stability, the results of the present research show that the present rating is generally correlated with the retrospective or prospective one. This difference is probably due to the different data collection type. In the Vandenplas-Holper et al. (2000) study, mothers provided free descriptions while in the present research, they completed rating scales. Furthermore, while Costa and Mc Crae (1988) weighed data collected at several intervals with test-retest coefficients, the present research doesn't provide the coefficients of real stability.

The results obtained from the concepts of entity or incremental theory of the personality don't corroborate the hypotheses and the results of the previous Erdley and Dweck (1993) study. The data collection type and the sample are very different. Furthermore, the concept of incremental theory considers the change in a positive way while our data consider only a global assessment of possible change without any particular direction. The mothers previously provided a very positive rating of their child's personality. In accordance with the optimistic bias, entity mothers think that the child's personality will still be the same while incremental mothers believe that it will eventually change in a negative way. So in the present study, the optimistic bias is more important in entity mothers.

With regard to the *causal attributions of change* in the broad-ranging sample, the positive changes that occurred in the child's personality are explained by parents' child-rearing practices and child's efforts. It is fundamental for a mother to believe in her power of control on her child's development and in the child's will for a favourable development. These fundamental beliefs assure the mother's investment in her child's education. For the mothers of disabled children, the satisfaction towards that changes occurred in the child's personality is correlated with parents' child-rearing practices on the one hand and with the influence of others on the other hand. It is fundamental for the mother to believe in her child-rearing power. The correlation with the influence of others refers to professionals around the disabled child and his/her family. It illustrates that the mothers attach great importance to the specialists' influence and seem to be dependent on the professionals. Furthermore, the absence of correlation between the satisfaction towards changes and child's efforts indicates that the mothers of disabled children consider their child as a passive person. These results are corroborated by the Sigel (1985) study which showed that parents of disabled children consider their child gains knowledge passively. Furthermore, the more severe the disability was, the less parents used distancing child-rearing strategies.

Finally, with regard to the *attributions of positive and negative traits*, in accordance with the hypotheses, mothers of the two samples attribute positive traits to stable causes, parents' child-rearing practices and child's nature. The influence of external events is also linked to positive traits. Consisting notably of peers', family or teachers' influence, they can be considered as relatively stable. The mothers of normally-developing children attribute negative traits to child's age as a transitory cause. These negative traits may disappear in the future and aren't permanent in the child's personality. This optimistic bias is fundamental because it influences greatly the mother's behaviour towards her child's negative behaviours. Mothers have to believe that negative behaviours aren't definitive in order to attempt to change them in a positive way (Mills & Rubin, 1990; Affleck et al., 1982; Pearl & Donahue, 1995). The hypothesis according to which the mothers of disabled children attribute negative traits to stable causes is not corroborated by analyses.

Since the present study led to some significant differences according to child's age and child's mental development, it goes further than previous contributions. Next research is necessary to understand from a developmental view and longitudinal design, how mothers' beliefs change as their child grows. Furthermore, other studies have to estimate the impact of mothers' beliefs (the optimistic bias for example) on interactions with their child and on their child-rearing practices. Finally, clinical conclusions would be provided in order to enhance counselling with parents of developmentally or behaviourally disabled children.

Notes

- ¹ "Children differ each other. In comparison with others, one child is calm or nervous, disagreeable or kind, ... Here is a short questionnaire relating to your child's personality. You are asked to describe your child with 25 pairs of adjectives. You are asked to describe how is your child in comparison with other children in general: his/her brother(s) or sister(s), his/her cousins, the neighbours, your friends' children, ..."

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La présente recherche est consacrée aux théories implicites de mères à propos de la personnalité et du développement de leur enfant (stabilité ou changement et attributions causales). Elle analyse comment ces théories implicites peuvent être affectées par l'expérience des mères (être mère d'un enfant de 6 ou de 12 ans et être mère d'un enfant tout-venant ou déficient mental). Les échelles d'évaluation ont été complétées par plusieurs échantillons de mères. L'effet de l'orientation temporelle (rétrospective versus prospective) a par ailleurs été investigué. Les résultats montrent qu'un biais d'optimisme intervient dans les évaluations fournies par les mères mais que les mères d'enfants avec handicap mental sont moins positives que celles de l'échantillon tout-venant. Les résultats indiquent aussi une baisse de la positivité à l'égard de l'enfant à mesure que celui-ci grandit. Le biais d'optimisme semble s'exercer différemment selon l'orientation temporelle chez les mères d'enfants tout-venant ou déficient mental. De même, le changement rétrospectif est surestimé par rapport au changement prospectif chez les mères d'enfants tout-venant.

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Current theme of research:

Children's personality rating; Mothers' beliefs about child's development; Mothers' child-rearing practices; Disabled children; Parental counselling; Moral development.

Most relevant publications in the field of Psychology of Education:

- Roskam, I., & Vandenplas-Holper, C. (2000). Résilience et personnalité: Etudes empiriques et réflexions théoriques. In J.-P. Pourtois & H. Desmet (Eds.), *Relation familiale et résilience* (pp. 137-171). Paris: L'Harmattan.
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